Celeron 2GHz CPU loading BOX-PC
for High-Speed Processings

IPC-BX720-AC Series

* Specifications, color and design of the products are subject to change without notice.

Model*	Expansion Slot	OS
IPC-BX720-AC41G	PCI slot x 2	Windows XP Professional
IPC-BX720-AC42F	PCI slot x 2	Windows XP Embedded

This product is the "BOX-PC 720 Series" of embedded computers based on the Intel(R) Celeron (R) 2.0 GHz processor with a Windows OS preinstalled. The 720 Series is a compact BOX-PC with a high-power CPU while clearing severe environment conditions for ambient temperatures based on its dust cooling system providing high cooling efficiency and dust resistance. The BOX-PC has a wealth of extension interfaces, with all the connectors including the PCI slots concentrated on the front panel, providing superb maintainability and other added values unique to CONTEC. As the BOX-PC incorporates handpicked components such as the embedded types of CPU and chipset, it excels in reliability and stable supply for an extended period of time, offering usability without anxiety.

Features

High performance
Equipped with a high-performance CPU of Intel (R) Celeron (R) processor 2.0 GHz (400-MHz FSB), supporting high-speed data acquisition/arithmetic applications.

High-power CPU based compact PC serviceable in a guaranteed operating range of ambient temperatures from 0 to 50 degrees centigrade (*1).

Assorted extension interfaces
Coming standard with a variety of extensions such as two PCI slots, five serial ports (RS-232C x 4, RS-422/485 x 1 [inside a RAS connector]), two LAN connectors (100BASE-T x 1, 100BASE-TX x 1), a CF slot (bootable), and the RAS connector.

High maintainability
The front panel with all the connectors and PCI slots and the slot-in system facilitating the mounting and demounting of storage devices.

PCI slots in the riser unit structure removable from the system unit, making it easy to plug and unplug PCI boards.

Long-life fan (life expectancy of six years (*2)) in an easily replaceable fan unit

High reliability and secure design
Duct cooling system with high cooling efficiency and dust resistance, using the fan unit to directly cool the CPU and the left and right ducts to exhaust the isolated air from heat sources.

Equipping with a falling-off stopper clamp for the AC power cable, a falling-off stopper bracket for the CF slot, and a strong falling-off stopper clamp for the PCI-slot.

EEPROM retaining the BIOS settings, capable of booting even when the battery is dead.

Stable supply
Long-life design with handpicked components such as the CPU and chipset for embedded computing, remaining in stable supply for an extended period of time as industrial equipment.

(*1) The temperature range is for the silicon disk drive mounted model with a Windows OS preinstalled. For the HDD mounted model, the guaranteed operating range of temperatures is 5 to 45 degrees centigrade.

(*2) The period of time is expected assuming the continuous operation at an ambient temperature of 40 degrees centigrade.

Supported OS

Windows XP Professional

Windows XP Embedded

Functional Specification

< 1 / 2 >

Item		Specification
CPU		Intel(R) Celeron(R) Processor 2.0GHz(FSB400MHz)
Chipset		Intel(R) 845GV
Memory	L2 Cache	256KB
	Main memory	Standard 512MB *1 2GB(1GB x 2)(Max.), 2.5V 184 pin DDR SDRAM PC2100 DIMM Socket x 2
	BIOS ROM	128KB E0000H - FFFFFH (Award)
Video	Controller	Intel(R) 845GV (Built into the controller)
	Video RAM	Main memory shared
	Video BIOS	48KB (C0000H - CBFFF)
	Display I/F	DVI-I 29 pin *2
System resolution		640 x 480(16,770,000 colors), 800 x 600(16,770,000 colors), 1,024 x 768(16,770,000 colors), 1,280 x 1,024(16,770,000 colors), 1,600 x 1,200(16,770,000 colors)
Audio		AC97 compliant LINE IN : ϕ3.5 Stereo mini jack Full-scale input level 1.3Vrms(Typ.) LINE OUT : ϕ3.5 Stereo mini jack Full-scale output level 1.0Vrms(Typ.), Dual 250mW Amplifier MIKE IN : ϕ3.5 Monaural mini jack Full-scale input level 1.3Vrms(Typ.)
IDE HDD I/F	Primary	Ultra DMA/100 One 2.5-inch IDE HDD or silicon disk drive mounted (Primary IDE Master)
	Secondary	Equipped with a dedicated 36pin, half-pitch connector (for connection of an optional CD-ROM/DVD-ROM drive) (Secondary IDE Master)
CF card slot		CF CARD Type I, II x 1(dedicated to memory card)(Secondary IDE Slave)
Serial I/F		RS-232C(general-purpose): 4ch (SERIAL PORT1, 2, 3, 4) 9 pin D-SUB connector RS-232C(touch panel): 1ch (SERIAL PORT5) [inside the DVI connector] *3 RS-422/485(general-purpose): 1ch (SERIAL PORT6) [inside the RAS connector] Baud rate: SERIAL1, 2 is 115,200bps, SERIAL3 - 6 is 230,400bps
LAN1	I/F	Ethernet 100BASE-TX/10BASE-T RJ-45 connector
	Controller	Intel(R) ICH4(Built into the controller)
LAN2	I/F	Ethernet 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector
	Controller	Intel(R) 82541PI
USB I/F		4ch(USB 2.0 specification)
keyboard I/F		Corresponding to PS/2 keyboard (6pin mini-DIN connector)
Mouse I/F		Corresponding to PS/2 mouse (6pin mini-DIN connector)

Item		Specification
General-purpose I/O		3 opto-isolated inputs and outputs (However, one output also serves as an external WDT output and one input also serves as remote reset. They become available when switched.)
RAS function		WDT: 1sec - 255sec (RESET, interrupt or external output is allowed at time expiration) Remote reset: External input signal
Expansion board slot		PCI slot x 2 (PCI Rev2.0 compliant) Usable board dimension: 190.00(L) x 106.68(H)mm (Max.)
RTC/CMOS		Lithium backup battery life: 10 years or more The real-time clock is accurate within ±3 minutes (at 25°C) per month (ICH4 built in RTC) *4, ±1 minute/per month (a high-precision RTC) *4.
Power supply	Input supply voltage	85 - 132VAC/170 - 264VAC(47 - 63Hz) input automatic operation switch
	Current consumption	190VA (Max.)
	External device power supply capacity *5	- CF card slot: +5V: 500mA *6 - USB I/F: +5V: 2A (500mA x 4) *6 - Expansion board slot: +5V: 2A (1A x 2 slot) *6, +3.3V: 2A(1A x 2 slot), -5V: unsupply, +12V: 0.5A, -12V: 80mA
External dimension (mm)		242(W) x 262(D) x 115(H) (No protrusion)
Weight		About 5.6kg(At the time of the HDD(SDD) uninstalling)

*1 512MB memory module is plugged.
*2 The interface can connect the PC to a CONTEC Panel Link input type display (using an optional cable) or an ordinary analog RGB input display (using the bundled DVI-analog RGB adapter).
*3 The interface is used for the CONTEC Panel Link or touch panel type display.
*4 This product contains a high-precision RTC (±1 minute/per month) beside the ICH4 integrated RTC. You can use the RTC utility to synchronize the ICH4 integrated RTC with the high-precision RTC. For using the RTC utility, refer to IPC-SLIB-01.
*5 If an external device rapidly consumes current immediately after the power is turned on, the BOX-PC may not work normally even when the supply source capacity is within the specified range.
*6 The total supply capacity for +5V external devices must be within 3 A.

Installation Environment Requirements

Item			Specification
Power supply specifications	Allowable instantaneous power outage		Less than 20ms
			One minute each for 2.0kV AC (input - FG) 20mA
	Dielectric strength		50MΩ (500VDC)
Ambient specifications	Operating temperature		0 - 50°C(Using the SDD *1), 5 - 45°C(Using the HDD)
	Storage temperature		-10 - 60°C
	Operating humidity		10 - 90%RH(No condensation)
	Floating dust particles		Not to be excessive
	Corrosive gases		None
	Line-noise resistance	Line noise	AC line/±2kV, Signal line/±1kV (IEC61000-4-4Level 3, N61000-4-4Level 3)
		Static electricity resistance *3	Contact discharge/±4kV (IEC61000-4-2Level 2, EN61000-4-2Level 2) Atmospheric discharge/±8kV (IEC61000-4-2Level 3, EN61000-4-2 Level 3)
	Vibration resistance *2	Sweep resistance	10 - 57Hz/semi-amplitude 0.15mm 57 - 150Hz/2.0G 40 min. each in x, y, and z directions (JIS C0040-compliant, IEC68-2-6-compliant)
	Impact resistance *2		10G, half-sine shock for 11 ms in x, y, and z directions (JIS C0041-compliant, IEC68-2-27-compliant)
	Grounding		Class D grounding (previous class 3 grounding)

*1 When Windows OS operates(Please consult about operation excluding Windows OS)
*2 When the HDD is not in use.
*3 CPU heat sink and the duct opening are excluded.

List of Options

Memory for extension (184 pin DIMM)

PC-MDD512-184A 184-Pin DDR-Memory (PC2700, 512MB)
PC-MDD1G-184A 184-Pin DDR-Memory (PC2700, 1GB)

Silicon disk drive for extension (IDE 2.5inch)

[PC-ESD Series]

PC-ESD500	512MB silicon disk drive
PC-ESD1000	1GB silicon disk drive
PC-ESD2000	2GB silicon disk drive
PC-ESD4000	4GB silicon disk drive
PC-ESD8000	8GB silicon disk drive
PC-ESD500-A	512MB silicon disk drive
PC-ESD1000-A	1GB silicon disk drive
PC-ESD2000-A	2GB silicon disk drive
PC-ESD4000-A	4GB silicon disk drive
PC-ESD8000-A	8GB silicon disk drive

[PC-ESD Series]

PC-SDD64V	64MB silicon disk drive
PC-SDD128V	128MB silicon disk drive
PC-SDD192V	192MB silicon disk drive
PC-SDD320V	320MB silicon disk drive
PC-SDD500V	512MB silicon disk drive
PC-SDD1000V	1GB silicon disk drive
PC-SDD2000V	2GB silicon disk drive

CF Card

CF-1GB-R	1GB CompactFlash for Fix Disk
CF-2GB-R	2GB CompactFlash for Fix Disk
CF-4GB-R	4GB CompactFlash for Fix Disk
CF-8GB-R	8GB CompactFlash for Fix Disk
CF-1GB-A	1GB CompactFlash for Fix Disk
CF-2GB-A	2GB CompactFlash for Fix Disk
CF-4GB-A	4GB CompactFlash for Fix Disk
CF-8GB-A	8GB CompactFlash for Fix Disk

Terminal block for connecting the RAS connector

IPC-PSD-20 Terminal block for connecting the RAS connector

TFT color liquid-crystal display

< Analog RGB types >
FPD-H21XT-AC
(15 inch 1024 x 768 dots, Panel mounted type)
FPD-M21VT-AC
(12.1 inch 800 x 600 dots, Panel mounted type)
FPD-L21ST-AC
(10.4 inch 640 x 480 dots, Panel mounted type)

< Panel Link types >
IPC-DT/H40X(PC)T
(15 inch 1024 x 768 dots, Panel mounted type)
IPC-DT/L40S(PC)T
(12.1 inch 800 x 600 dots, Panel mounted type)
IPC-DT/L440(PC)TA
(12.1 inch 800 x 600 dots, Desktop/wall-mounted)
IPC-DT/L440(PC)TB
(12.1 inch 800 x 600 dots, Desktop/wall-mounted, anti-glare type)

< Analog RGB types >

IPC-DT/M20V(PC)T	(10.4 inch 640 x 480 dots)
IPC-DT/L20S(PC)T	(12.1 inch 800 x 600 dots)
IPC-DT/H20X(PC)T	(15 inch 1024 x 768 dots)

Display cable only for DVI-D

IPC-DVI/D-020	DVI-D type display cable (2m)
IPC-DVI/D-050	DVI-D type display cable (5m)

Display cable only for PanelLink

IPC-DVIPL-020 DVI-PanelLink conversion display cable (2m)
IPC-DVIPL-050 DVI-PanelLink conversion display cable (5m)

Touch-panel cable for an analog RGB display

IPC-CBL3-2 AT host Touch panel, COM cable (2m)
IPC-CBL3-5 AT host Touch panel, COM cable (5m)

CD-ROM/ DVD-ROM drive

IPC-CDD-03 CD-ROM/ DVD-ROM drive

CD-ROM/ DVD-ROM drive connection cable

IPC-CDC-04 CD-ROM/DVD-ROM CABLE

FAN, FAN Filler

IPC-FAN9225S FAN for IPC-Series (92 x 25mm)
IPC-FAN4020S FAN for IPC-Series (40 x 20mm)
IPC-FLT92 FAN Filter (92 x 92mm 10pcs)

Packing List

Name	Pcs.
BOX-PC	1
DVI-Analog RGB Conversion Adapter	1
The attachment fittings	2
CF Card Lock	1
Slot cover	2
Power cable fixed clamp	1
Power Cable	1
Two-point sems screw (M3 x 5)	4
Three-point sems screw (M3 x 6)	3
Three-point sems screw (M4 x 8)	4
IPC-SLIB-01 *1 (User's manual, Driver & Utility Soft Set)	1
Recovery Media *2	1
Royalty consent contract *2	1
Setup procedure document *2	1
IPC Precaution List	1
Product guide	1

*1 Please confirm latest information on the CONTEC homepage though the user's manual is stored in IPC-SLIB-01.
*2 Products with HDD less model don't include.

Component Life

(1) Power supply

When continuously operating at 40°C, the estimated life expectancy is about five years(The horizontal installation). However, it decreases according to the use temperature (high temperature).

(2) Battery

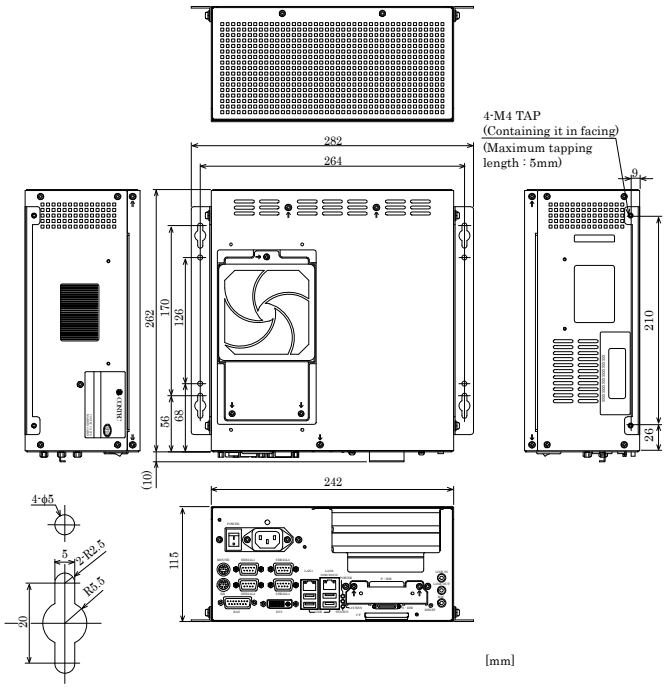
The internal calendar clock and CMOS RAM are backed by a Lithium primary battery. The backup time at a temperature of 25°C with the power disconnected is 10 years or more.

(3) FAN

When continuously operating at 40°C, the estimated life expectancy is about six years.
However, it decreases according to the use temperature (high temperature).

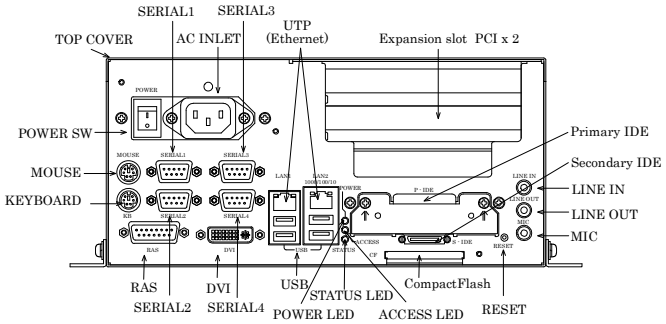
* Replacement of expendables is handled as a repair (there will be a charge).

Physical Dimensions



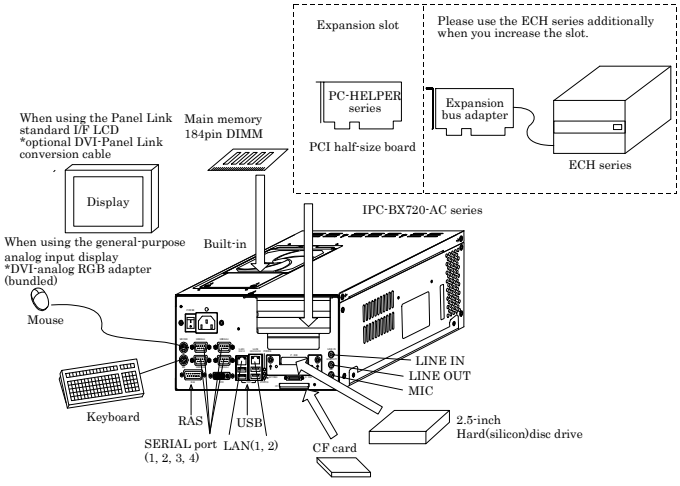
[mm]

Component Locations



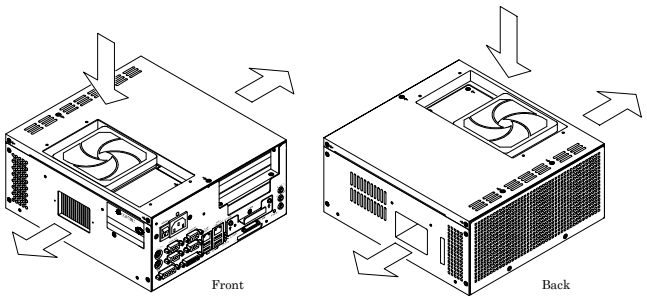
Name	Function
LINE IN	Line in (ϕ3.5 PHONE JACK)
LINE OUT	Line out (ϕ3.5 PHONE JACK)
MIC	Mike in (ϕ3.5 PHONE JACK)
RESET	Hard reset push button
P-IDE	Primary IDE connector (dedicated to 44 pin socket)
S-IDE	Secondary IDE connector (dedicated to 36 pin half pitch connector)
CF	CF card slot (secondary IDE connection)
POWER	Power ON display LED
ACCESS	IDE disk access display LED
STATUS	General-purpose LED
LAN1	Ethernet 100BASE-TX/10BASE-T RJ-45 connector
LAN2	Ethernet 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector
USB	USB port connector
SERIAL1	Serial port 1 connector (9 pin D-SUB/male)
SERIAL2	Serial port 2 connector (9 pin D-SUB/male)
SERIAL3	Serial port 3 connector (9 pin D-SUB/male)
SERIAL4	Serial port 4 connector (9 pin D-SUB/male)
KB	Keyboard connector (6 pin mini-DIN)
MOUSE	PS/2 mouse connector (6 pin mini-DIN)
DVI	DVI connector (DVI-I 29 pin)
RAS	RAS function and RS-485 connector (15 pin D-SUB/female)
POWER	Power SW & AC power input connector
Expansion slot	PCI x 2

System Configuration



Air flows

The following sketches illustrate air flows of this product. Before installing the product, consider the air flows, ventilation, and installation conditions for its use.



Expansion Slots

This product has two PCI bus expansion slots to hold PCI bus boards.

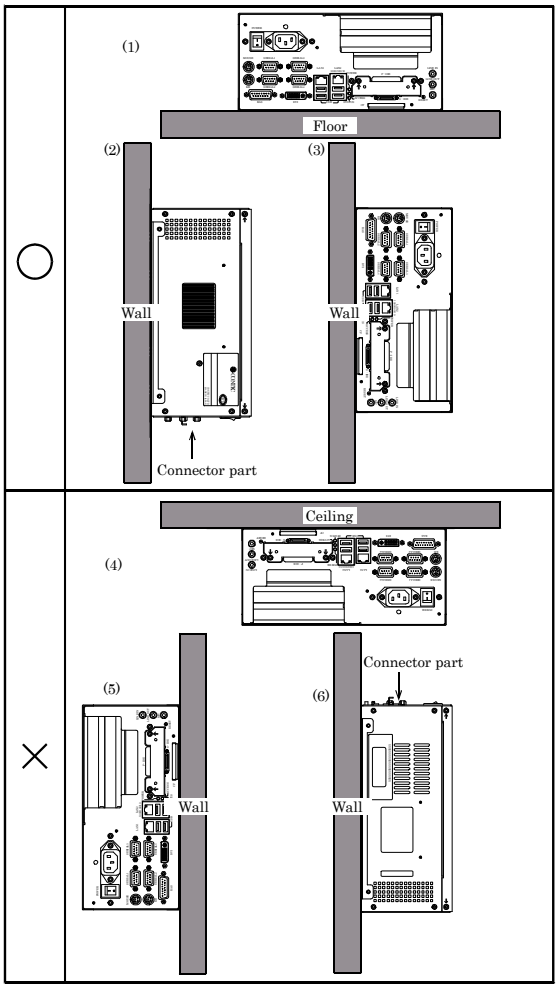
Board Dimensions Allowed

⚠ CAUTION
A board that uses the back of the board edge connector (the shaded area in the figure) may not be mounted.

Installation Requirements

The BOX-PC can be installed in any orientation (1) through (3). Avoid orientation (4) through (6) since it might not adequately dissipate heat. Similarly, to maintain the ambient temperature within the range specified in the specifications, ensure a clearance between the unit and surrounding equipment of at least 100mm for the top and rear and 50mm for the bottom and sides.

Installation Orientation



Distances between the BOX-PC and Its Vicinity